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EXAMINER	
LEUNG, CHRISTINA Y	

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2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/784,972	Applicant(s) GERSTEL ET AL.	
	Examiner Christina Y. Leung	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-17 and 30-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14,30,31,34 and 36* is/are allowed.

6)☒ Claim(s) *12,13,15-17,32,33,35 and 37-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Konishi (US 5,060,224 A).

Regarding claim 12, Konishi discloses an optical node 70a (Figure 4) comprising:

a line interface having a line side transmit port to transmit an optical signal (i.e., the output of node 70a, which outputs a transmission onto line L4) and a line side receive port to receive an optical signal (i.e., the input of node 70a, to which a received signal from L4 is input);

a port side interface having a port side transmit port to transmit an optical signal (i.e., the output port of optical transmitting and receiving circuit 75a that outputs an optical signal to optical switch 71a) and a port side receive port to receive an optical signal (i.e., the input port of optical transmitting and receiving circuit 75a that inputs an optical signal from optical switch 71a); and

a transponder (including optical switch 71a and optical transmitting and receiving circuit 75a) connected to the line side transmit port and the line side receive port of the line side interface, and also connected to the port side transmit port and port side receive port of the port side interface, the transponder including a loopback mechanism (optical switch 71a) to perform at least one of looping back a received optical signal at the line side receive port to the line side

transmit port and looping back a received optical signal at the port side receive port to the port side transmit port, without converting any received optical signal to electrical form during looping back (column 4, lines 12-17).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 13, 16, 17, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi in view of Blair et al. (US 6,141,125 A).

Regarding claim 13, Konishi discloses an optical node 70a (Figure 4) interconnected in an optical communication system having the optical node and plural other optical nodes (see Figure 3), the optical node comprising:

a line side receive interface to receive one or more of a plurality of optical wavelengths (i.e., the input of node 70a, to which a received signal from L4 is input)

a line side transmit interface to transmit one or more of a plurality of optical wavelengths (i.e., the output of node 70a, which outputs a transmission onto line L4); and

a loopback mechanism (optical switch 71a) to perform looping back of the one or more of the plurality of optical wavelengths received at the line side receive interface to the line side transmit interface without converting the optical wavelengths to electrical form . Figure 4 shows a dashed line in switch 71a which represents a loopback state for connecting an optical

wavelength received at the line side receive interface to the line side transmit interface without converting it to electrical form (column 4, lines 12-17).

Konishi does not specifically disclose receiving, transmitting, or looping back a test optical wavelength. However, Blair et al. teach an optical communication system, related to the one disclosed by Konishi, including a plurality of interconnected nodes (Figure 1). Blair et al. also teach that the nodes in such a system may transmit and receive a test signal, on its own test signal wavelength separate from other wavelengths containing data (column 1, lines 30-44; column 2, lines 49-61).

It would have been obvious to a person of ordinary skill in the art to include a test signal wavelength as suggested by Blair et al. among the plurality of optical wavelengths in the system already disclosed by Konishi in order to monitor the status of the nodes and paths in the optical communication system and ensure that the system is functioning as desired. One in the art would have been particularly motivated to include a test signal wavelength as taught by Blair et al. so that faults in the network operation can be readily detected.

Regarding claim 37, Konishi further discloses that the loopback mechanism 71a comprises a 2x2 optical switch having a first input port (i.e., the port shown at the upper left side of switch 71a in Figure 4) connected to receive at least one of the optical wavelengths received at the line side receive interface,

the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port (the port shown at the upper right side of switch 71a) or from a second output port (the port shown at the lower left side of switch 71a), the optical switch further having a second input port (the port shown at the lower right side of switch 71a).

Regarding claim 16, Konishi discloses an optical node 70a (Figure 4) comprising:

a line side receive port to receive an optical signal, that originated from an originating optical node (the input of node 70a, to which a received signal from L4 is input);

a line interface having a line side transmit port to transmit the optical signal back to the originating node (the output of node 70a, which outputs a transmission onto line L4);

at least one transponder (optical transmitting and receiving circuit 75a) having a transmit output terminal and a receive input terminal (the circuit 75a transmits optical signals to the switch 71a and receives optical signals from the switch 71a; column 3, lines 43-47 and lines 62-65); and

at least one optical switch 71a having four terminals, with a first terminal connected to the line side receive port and a second terminal connected to the line side transmit port of the line interface, and a third terminal connected to the receive input terminal and a fourth terminal connected to the transmit output terminal of the transponder (Figure 4 shows the four terminals of switch 71a, wherein the first and second terminals are shown at the top of the switch 71a in Figure 4 and are connected directly to the line L4; and wherein the third and fourth terminals are shown at the bottom of the switch 71a in Figure 4 and are connected directly to the transponder 75a),

the optical switch 71a having a normal state (column 4, lines 40-44 and lines 66-68; column 4, lines 1-2) in which a first optical path is provided from the first terminal to the third terminal of the optical switch to provide an optical connection from the line side receive port of the line interface to the receive input terminal of the transponder (i.e., the path represented by the solid straight line on the left side in switch 71a in Figure 4) and a second optical path is provided

from the second terminal to the fourth terminal of the optical switch to provide an optical connection from the transmit output terminal of the transponder to the line side transmit port of the line side interface (i.e., the path represented by the solid straight line on the right side in switch 71a),

the optical switch 71a having a loopback state(column 4, lines 12-17) in which a third optical path is provided from the first terminal to the second terminal of the optical switch to loopback the optical signal received at the line side receive port to the line side transmit port of the line interface (i.e., the path represented by the dashed curved line at the top of switch 71a), and a fourth optical path is provided from the third terminal to the fourth terminal of the optical switch to loopback the optical signal transmitted from the transmit output terminal to the receive input terminal of the transponder (i.e., the path represented by the dashed curved line at the bottom of switch 71a),

wherein while in the loopback state, the optical switch does not convert the optical signal to electrical form (column 4, lines 12-17).

Konishi does not specifically disclose receiving, transmitting, or looping back a test optical signal. However, again, Blair et al. teach an optical communication system, related to the one disclosed by Konishi, including a plurality of interconnected nodes (Figure 1). Blair et al. also teach that the nodes in such a system may transmit and receive a test signal, on its own test signal wavelength separate from other wavelengths containing data (column 1, lines 30-44; column 2, lines 49-61).

It would have been obvious to a person of ordinary skill in the art to include a test signal wavelength as suggested by Blair et al. among the plurality of optical wavelengths in the system

already disclosed by Konishi in order to monitor the status of the nodes and paths in the optical communication system and ensure that the system is functioning as desired. One in the art would have been particularly motivated to include a test signal wavelength as taught by Blair et al. so that faults in the network operation can be readily detected.

Regarding claim 17, Konishi discloses an optical node 70a (Figure 4) comprising

a line side receive port to receive an optical signal (the input of node 70a, to which a received signal from L4 is input);

a line interface having a line side transmit port to transmit the optical signal back to the originating node (the output of node 70a, which outputs a transmission onto line L4);

at least one transponder (optical transmitting and receiving circuit 75a) having a transmit output terminal and a receive input terminal (the circuit 75a transmits optical signals to the switch 71a and receives optical signals from the switch 71a; column 3, lines 43-47 and lines 62-65); and

at least one optical switch 71a to perform at least one of looping back the optical signal received at the line side receive port to the line side transmit port of the line side interface (the path represented by the dashed curved line at the top of switch 71a), and looping back the optical signal transmitted from the transmit output terminal to the receive input terminal of the transponder (the path represented by the dashed curved line at the bottom of switch 71a),

the optical switch 71a having first and second switch terminals connected to the line side transmit port and line side receive port, respectively, of the line interface (the first and second terminals are shown at the top of the switch 71a in Figure 4 and are connected directly to the line L4), and having third and fourth switch terminals connected to the transmit output terminal and

the receive input terminal, respectively, of the transponder (the third and fourth terminals are shown at the bottom of the switch 71a in Figure 4 and are connected directly to the transponder 75a),

wherein when performing looping back, the optical switch does not convert the optical signal to electrical form (column 4, lines 12-17).

Konishi does not specifically disclose receiving, transmitting, or looping back a test optical signal. However, again, Blair et al. teach an optical communication system, related to the one disclosed by Konishi, including a plurality of interconnected nodes (Figure 1). Blair et al. also teach that the nodes in such a system may transmit and receive a test signal, on its own test signal wavelength separate from other wavelengths containing data (column 1, lines 30-44; column 2, lines 49-61).

It would have been obvious to a person of ordinary skill in the art to include a test signal wavelength as suggested by Blair et al. among the plurality of optical wavelengths in the system already disclosed by Konishi in order to monitor the status of the nodes and paths in the optical communication system and ensure that the system is functioning as desired. One in the art would have been particularly motivated to include a test signal wavelength as taught by Blair et al. so that faults in the network operation can be readily detected.

5. Claims 13, 15, 32, 33, 35, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al. (US 5,717,795 A) in view of Blair et al.

Regarding claim 15, Sharma et al. disclose an optical network (Figures 15 and 27) comprising:

n, where n is an integer, optical nodes (such as A1, Cn, and C1 shown in Figure 27; column 11, lines 32-45), including a source node to provide an optical signal and a destination node to receive the optical signal (a signal may be provided from a source node A1 to a destination node C1, for example);

optical fibers B1 and B2 optically connecting the n nodes and to carry the optical signal from the source node to the destination node via intermediate nodes; and

an optical loopback circuit (switches such as switches A18, A19, C111, and C112 shown in Figure 27) to perform looping back of the optical signal at any one of the nodes to a preceding node without converting the optical signal to an electrical signal (Figure 28C shows a loopback configuration of one of the switches; column 11, lines 39-60).

Sharma et al. do not specifically disclose receiving, transmitting, or looping back a test optical signal. However, Blair et al. teach an optical communication system, related to the one disclosed by Sharma et al., including a plurality of interconnected nodes (Figure 1). Blair et al. also teach that the nodes in such a system may transmit and receive a test signal, on its own test signal wavelength separate from other wavelengths containing data (column 1, lines 30-44; column 2, lines 49-61).

It would have been obvious to a person of ordinary skill in the art to include a test signal wavelength as suggested by Blair et al. among the plurality of optical wavelengths in the system already disclosed by Sharma et al. in order to monitor the status of the nodes and paths in the optical communication system and ensure that the system is functioning as desired. One in the art would have been particularly motivated to include a test signal wavelength as taught by Blair et al. so that faults in the network operation can be readily detected.

Regarding claim 38, Sharma et al. further disclose a line side transmit interface (i.e., an output from node C1 that sends signals to main line B1) for transmitting one or more of a plurality of optical wavelengths to the optical nodes;

an associated line side receive interface (i.e., an input to node C1 from protection line B2) for receiving one or more of a plurality of optical wavelengths from the optical nodes;

a second line side transmit interface (i.e., an output from node C1 that sends signals to protection line B2) for transmitting one or more of a plurality of optical wavelengths to the optical nodes; and

an associated second line side receive interface (i.e., an input to C1 from main line B1) for receiving one or more of a plurality of optical wavelengths from the optical nodes,

wherein the optical loop-back circuit comprises a 2x2 optical switch (such as switch C111, connected to what may be considered "first" line side transmit and receive interfaces on the left side of the node C1 in Figure 27) having a first input port connected to receive at least one of the optical wavelengths received at the line side receive interface, the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port or from a second output port, the optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch).

Although Figure 27 does not explicitly indicate which of the four interfaces of node C1 are input/receive interfaces and which are output/transmit interfaces, Sharma et al. clearly disclose that the node is designed to transmit and receive signals on line B1 or line B2 and therefore disclose that the four interfaces of the node accordingly comprise two transmit interfaces and two receive interfaces (column 11, lines 32-67), wherein the first transmit/receive

interfaces are shown on one side of node C1 in Figure 27 and the second transmit/receive interfaces are shown on the other side of node C1.

Regarding claim 39, Sharma et al. disclose that the optical loopback circuit further comprises a second 2x2 optical switch (such as switch C112, connected to what may be considered "second" line side transmit and receive interfaces on the left side of the node C1 in Figure 27) having a first input port connected to receive at least one of the optical wavelengths received at the second line side receive interface, the second optical switch being adapted to output the received optical wavelength from a first output port to the second line side transmit port or from a second output port, the second optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch).

Regarding claim 13, Sharma et al. disclose an optical node (such as node C1 in Figure 27) interconnected in an optical communication system having the optical node and plural other optical nodes (such as A1 and Cn), the optical node comprising:

a line side receive interface (i.e., an input to node C1 from protection line B2) to receive one or more of a plurality of optical wavelengths;

a line side transmit interface (i.e., an output from node C1 that sends signals to main line B1) to transmit one or more of a plurality of optical wavelengths; and

a loopback mechanism to perform looping back of the one or more of the plurality of optical wavelengths received at the line side receive interface to the line side transmit interface without converting the optical wavelengths to electrical form (Figure 28C shows a loopback configuration of the switches).

Again, although Figure 27 does not explicitly indicate which of the four interfaces of node C1 are input/receive interfaces and which are output/transmit interfaces, Sharma et al. clearly disclose that the node is designed to transmit and receive signals on line B1 or line B2 and therefore disclose that the four interfaces of the node accordingly comprise two transmit interfaces and two receive interfaces (column 11, lines 32-67), wherein each side of node C1 would include one interface for transmitting and one interface for receiving.

Sharma et al. do not specifically disclose receiving, transmitting, or looping back a test optical signal. However, Blair et al. teach an optical communication system, related to the one disclosed by Sharma et al., including a plurality of interconnected nodes (Figure 1). Blair et al. also teach that the nodes in such a system may transmit and receive a test signal, on its own test signal wavelength separate from other wavelengths containing data (column 1, lines 30-44; column 2, lines 49-61).

It would have been obvious to a person of ordinary skill in the art to include a test signal wavelength as suggested by Blair et al. among the plurality of optical wavelengths in the system already disclosed by Sharma et al. in order to monitor the status of the nodes and paths in the optical communication system and ensure that the system is functioning as desired. One in the art would have been particularly motivated to include a test signal wavelength as taught by Blair et al. so that faults in the network operation can be readily detected.

Regarding claim 32, Sharma et al. further disclose:

a second line side transmit interface (i.e., an output from node C1 that sends signals to protection line B1) for transmitting one or more of a plurality of optical wavelengths; and

an associated second line side receive interface (i.e., an input to node C1 from main line B1) for receiving one or more of a plurality of optical wavelengths,

wherein the loopback mechanism (switches C111 and C1112) is operable to loop back one or more of the plurality of optical wavelengths received at the second line side receive interface to the second line side transmit interface without converting the optical wavelengths to electrical form (Figure 28C shows a loopback configuration of the switches).

As already discussed above, the first transmit/receive interfaces are shown on one side of node C1 in Figure 27 and the second transmit/receive interfaces are shown on the other side of node C1.

Regarding claim 33, Sharma et al. disclose wherein the loopback mechanism comprises a 2x2 optical switch (such as switch C111, wherein the transmit/receive interfaces on the right side of node C1 are considered first transmit/receive interfaces) having a first input port connected to receive at least one of the optical wavelengths received at the line side receive interface, the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port or from a second output port, the optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch, while Figure 28A shows a regular configuration of the switch).

Regarding claim 35, Sharma et al. further disclose that the loopback mechanism further comprises a second 2x2 optical switch (such as switch C112, wherein the transmit/receive interfaces on the left side of node C1 are considered second transmit/receive interfaces) having a first input port connected to receive at least one of the optical wavelengths received at the second line side receive interface, the second optical switch being adapted to output the received optical

wavelength from a first output port to the second line side transmit port or from a second output port, the second optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch, while Figure 28A shows a regular configuration of the switch)..

Regarding claim 37, Sharma et al. further disclose that the loopback mechanism comprises a 2x2 optical switch (such as switch C111, wherein the transmit/receive interfaces on the right side of node C1 are considered first transmit/receive interfaces) having a first input port connected to receive at least one of the optical wavelengths received at the line side receive interface, the optical switch being adapted to output the received optical wavelength from a first output port to the line side transmit port or from a second output port, the optical switch further having a second input port (Figure 28C shows a loopback configuration of the switch, while Figure 28A shows a regular configuration of the switch).

Allowable Subject Matter

6. Claims 14, 30, 31, 34, and 36 are allowed.

7. Reasons for the indication of allowable subject matter were given in the previous Office Action.

Response to Arguments

8. Applicants' arguments with respect to claims 12, 13, 15, 16, and 17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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